

College Algebra – Matrices

1. The *determinant* of a matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ equals $ad - cb$.

What must be the value of x for the matrix $\begin{bmatrix} x & 8 \\ x & x \end{bmatrix}$ to

have a determinant of -16 ?

A. -4

B. -2

C. $-\frac{8}{5}$

D. $\frac{8}{3}$

E. 4

2. If $A = \begin{bmatrix} 2 & -4 \\ 6 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 4 \\ -6 & 0 \end{bmatrix}$, then $A - B = ?$

A. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

B. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

C. $\begin{bmatrix} 0 & -8 \\ 0 & 0 \end{bmatrix}$

D. $\begin{bmatrix} -4 & 0 \\ -12 & 0 \end{bmatrix}$

E. $\begin{bmatrix} 4 & -8 \\ 12 & 0 \end{bmatrix}$

3.

Which of the following matrices, when substituted for T , satisfies the matrix equation below?

$$T \begin{bmatrix} -3 \\ 5 \end{bmatrix} = \begin{bmatrix} 5 \\ 3 \end{bmatrix}$$

F. $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$

G. $\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$

H. $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$

J. $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$

K. $\begin{bmatrix} -1 & 0 \\ 1 & 0 \end{bmatrix}$

4.

Daisun owns 2 sportswear stores (X and Y). She stocks 3 brands of T-shirts (A, B, and C) in each store. The matrices below show the numbers of each type of T-shirt in each store and the cost for each type of T-shirt. The value of Daisun's T-shirt inventory is computed using the costs listed. What is the total value of the T-shirt inventory for Daisun's 2 stores?

	A	B	C	Cost
X	100	200	150	A \$ 5
Y	120	50	100	B \$10
				C \$15

- A. \$2,200
- B. \$2,220
- C. \$4,965
- D. \$5,450
- E. \$7,350